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Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

Mar 10 1997

In the Matter of)
)
Amendment of the Commission's Rules to) GN Docket No. 96-228
Establish Part 27, the Wireless)
Communications Service)

PETITION FOR EXPEDITED RECONSIDERATION

THE WIRELESS CABLE ASSOCIATION
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EXECUTIVE SUMMARY

The wireless cable industry and educational users of ITFS facilities require immediate relief from the Commission's *Report and Order* establishing rules and policies for the Wireless Communications Service ("WCS"). Notwithstanding evidence in the record demonstrating that operation of WCS facilities at excessive power will cause destructive blanketing interference to MDS and ITFS licensees, which evidence is supplemented herein, the Commission has refused to impose any power limitation whatsoever on WCS licensees. The Commission's decision must be reconsidered and modified on an expedited basis to avoid serious and irreparable injury to wireless cable operators and local educators.

Although the downconverters installed by wireless cable operators and educational users of ITFS spectrum have been designed to avoid interference by filtering out signals from currently authorized users of the 2305-2320 MHz and 2345-2360 MHz bands, those downconverters will suffer destructive blanketing interference if, as permitted under the new WCS rules, WCS signals are transmitted at power levels exceeding 20 watts EIRP in close proximity to MDS and ITFS receive sites. Nonetheless, the Commission adopted no power limitation on WCS licensees, apparently because it assumed that, in connection with a migration to digital technology, the wireless cable industry is "converting to newer, more robustly designed downconverters that have vastly improved frequency selectivity and would not receive WCS signals."

The premise underlying the Commission's rationale, however, is flawed. First, many wireless cable systems, particularly those serving more rural communities, are unlikely to convert to digital modulation because the costs associated with digital operations cannot be borne by their limited subscriber base. For similar reasons, ITFS licensees who operate independently of wireless cable systems also have expressed no plans to convert to digital technology and thus will not be required to replace their installed base of downconverters any time soon. Second, many of the wireless cable systems that anticipate converting to digital modulation have been installing "digital ready" downconverters for some time now (which are not immune to interference from high-power WCS operations), and will not be replacing those downconverters in connection with a conversion to digital transmission technology. Third, and most importantly, *it is impossible for equipment manufacturers to design downconverters that will eliminate blanketing interference from WCS where there are no power limitations on WCS licensees*. Thus, the solution envisioned by the Commission — the routine replacement of MDS and ITFS downconverters with equipment capable of rejecting interfering signals from high-power WCS operations — simply does not exist.

Moreover, the Commission provides little comfort to MDS and ITFS licensees through its statement that "we may in the future, based on actual WCS operations, find it necessary to adopt an interference rule for WCS." In the competitive multichannel video marketplace, it is naive to assume that wireless cable subscribers will suffer through destructive blanketing

interference for months, if not years, while the Commission conducts a formal rulemaking proceeding and/or a case-by-case review to address interference caused by WCS licensees. Indeed, even the threat of possible interference from WCS will have a chilling effect on the ability of the wireless cable industry to secure the investment it needs to finance the launch of new systems and the conversion of existing systems to digital technology. Similarly, distance learning educational programs can hardly afford to be disrupted while the Commission weighs its options should WCS cause destructive interference to ITFS operations.

Accordingly, WCA requests that the Commission impose a power limitation of 20 watts EIRP on WCS licensees prior to the commencement of the auction for WCS authorizations. Such action is the most efficient and sensible resolution of the WCS interference problem, and would be consistent with both the Commission's statutory obligation to regulate interference and the Commission's prior imposition of power limitations even in those services where it has employed a "flexible use" philosophy. The alternative, *i.e.*, allowing WCS licensees to operate at excessive power and remedying any resulting disruption of MDS and ITFS service after the fact, is not a defensible option given the potentially disastrous consequences to the wireless cable industry and distance learning programs that will result from WCS interference.

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In the Matter of

Amendment of the Commission's Rules to
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GN Docket No. 96-228

PETITION FOR EXPEDITED RECONSIDERATION

The Wireless Cable Association International, Inc. ("WCA"),^{1/} by its attorneys, hereby petitions the Commission to reconsider on an expedited basis its *Report and Order* (the "*WCS Order*") in the above-captioned proceeding.^{2/} For the reasons set forth below, WCA urges that the Commission impose a 20 watt EIRP power limitation on Wireless Communications Service ("WCS") operations to avoid blanketing interference to MDS and ITFS facilities, and that the Commission do so on an expedited basis.^{3/}

^{1/} WCA is the principal trade association of the wireless cable industry. Its membership includes virtually every wireless cable operator in the United States, the licensees of many of the Multipoint Distribution Service ("MDS") stations and Instructional Television Fixed Service ("ITFS") stations that lease transmission capacity to wireless cable operators, producers of video programming and manufacturers of wireless cable transmission and reception equipment. MDS and ITFS licensees operate in the 2.1 and 2.5-2.7 GHz frequency bands. Accordingly, as discussed in greater detail herein, WCA's membership has a vital interest in the Commission's rules for the Wireless Communications Service ("WCS") insofar as they relate to interference protection from WCS licensees operating in the 2.3 GHz band.

^{2/} FCC 97-50 (rel. Feb. 19, 1997).

^{3/} Blanketing interference is defined as "[t]he action of a powerful radio signal or

I. EXPEDITED ACTION IS NECESSARY AS A MATTER OF FAIRNESS TO WCS BIDDERS AND IS ESSENTIAL TO AVOID SERIOUS INJURY TO THE WIRELESS CABLE INDUSTRY AND THE ITFS SERVICE.

The emergency nature of this Petition arises from the impending commencement of the Commission's auction for WCS authorizations, and the serious and irreparable injury that the wireless cable industry and educators who rely on the ITFS service will suffer if the problems raised herein are not resolved quickly. Simply stated, in just a little more than a month, the Commission will begin auctioning off WCS authorizations that will not be subject to any power limitation. However, as is discussed in more detail below and in the accompanying Engineering

interference in rendering a receiving set unable to receive desired signals." IEEE Standard Dictionary of Electrical and Electronic Terms, The Institute of Electrical and Electronic Engineers, Inc., STD 100-1972. The Commission recently described the problem of blanketing interference as follows:

Receivers are designed to operate in an environment consisting of desired and undesired signals. As long as the levels of the signals remain within the design specifications of the receiver, it will operate in a predictable manner. If any of the signals in the environment exceed the design specifications of the receiver, the receiver will begin to operate with unpredictable results.

In the Matter of Amendment of Parts 73 of the Commission's Rules to More Effectively Resolve Broadcast Blanketing Interference, Including Interference to Consumer Electronics and Other Communications Devices, MM Docket No. 96-62, FCC 96-124 at ¶ 3 (rel. Apr. 26, 1996) [the "Blanketing Interference NPRM"]. Thus, the Commission has adopted explicit rules prohibiting blanketing interference in the FM, AM and Public Mobile Services, and has proposed to do the same for television licensees. 47 C.F.R. §§ 73.88, 73.318, and 22.353; *see also Blanketing Interference NPRM* at ¶¶ 12-15. Blanketing interference rules establish clear interference protection guidelines, delineate the technical responsibilities of carriers and foster efficient resolution of problems *without Commission intervention on a case-by-case basis*. *See, e.g., In the Matter of Height and Power Increases in the Public Mobile Service*, 4 FCC Rcd 5303, 5307 (1989). Yet, for reasons that are not explained in the *WCS Order*, the Commission has chosen to depart from its prior policy of assuring protection against blanketing interference and refused to impose appropriate limitations on WCS EIRP.

Statement of T. Lauriston Hardin, P.E., the Chair of WCA's Engineering Committee (the "Hardin Statement"), the Commission's failure in the *WCS Order* to impose any power limitation on WCS operations has raised the specter that MDS and ITFS reception will be decimated by blanketing interference from high-power WCS transmissions — *blanketing interference that cannot be mitigated by technological means.*^{4/}

Expedited action is appropriate here for two reasons. First, before the auction process begins, WCS auction participants should be fully aware of the limitations that will be imposed upon WCS authorizations. To date, there is no indication in the record that any potential application for WCS will require operation at an EIRP in excess of 20 watts. Nonetheless, to avoid unanticipated surprises for WCS bidders (and to preclude any suggestion that the Commission cannot not impose power limitations on WCS authorizations after the auction has concluded), it is incumbent upon the Commission to establish power limitations for WCS prior to the April 15, 1997 commencement of the bidding.

Second, expedited action on this Petition is essential to preserve the flow of necessary investment capital into the wireless cable industry and to assure that WCS interference not occur pending action on this Petition. The Commission provides little comfort to MDS and ITFS licensees through its statement that "we may in the future, based on actual WCS operations, find it necessary to adopt an interference rule for WCS."^{5/} In the competitive multichannel video

^{4/} Moreover, as the Hardin Statement makes clear, MDS and ITFS stations are not the only facilities that may suffer harmful blanketing interference as a result of high-power WCS operations. See Hardin Statement, at 3.

^{5/} *WCS Order* at ¶ 157.

marketplace, it is naive to assume that wireless cable subscribers will be willing to endure serious blanketing interference for months, if not years, while the Commission conducts a formal rulemaking proceeding and/or a case-by-case review to address WCS-caused interference. Indeed, even though it may be months before WCS service commences, the very threat of possible interference from WCS could have an immediate chilling effect on the ability of the wireless cable industry to secure the financial investment it needs to compete with incumbent multichannel providers. Regardless of whether WCS ever operates with the high power levels possible under the current rules, the possibility of such high-powered operation could discourage the funding wireless cable desperately needs to finance the launch of new systems and the conversion of existing systems to digital technology.^{6/} And, as discussed below starting at page 14, were the Commission to permit the actual commencement of WCS operations while this Petition remains pending, substantial harm could befall wireless cable systems and distance learning programs alike.

Accordingly, to ensure expedited consideration of the matters raised herein, WCA respectfully requests that the Commission waive its normal pleading cycle rules and require that any oppositions to this Petition be filed within ten days after the filing date hereof, *i.e.*, by no later than March 20, 1997, and that replies be due five days thereafter. In recent cases the Commission has, on its *own* motion, waived its pleading cycle rules to accelerate reconsideration where necessary to accommodate deadlines imposed by Congress, and such action is equally appropriate

^{6/} See *In the Matter of Annual Assessment of the Status of Competition in the Market for the Delivery of Video Programming*, CS Docket No. 96-133, FCC 96-496 at ¶¶ 62-64 (rel. Jan. 2, 1997).

here given the April 15, 1997 auction deadline imposed by Congress.^{7/} To facilitate adequate notice of this request to all affected parties, WCA has served a copy of this Petition on all entities who filed comments and reply comments on the Commission's *Notice of Proposed Rulemaking* in this proceeding.^{8/}

II. MDS AND ITFS LICENSEES COULD SUFFER SERIOUS INTERFERENCE UNLESS THE COMMISSION IMPOSES A POWER LIMITATION ON WCS LICENSEES.

In a recent report that Chairman Hundt has described as "the single best summary of desirable spectrum policy that I know of today,"^{9/} the Commission's Deputy Chief Economist and Special Counsel for the Commercial Wireless Division of the Wireless Telecommunications Bureau wrote:

^{7/} See *In the Matter of Implementation of the Pay Telephone Reclassification and Compensation Provisions of the Telecommunications Act of 1996*, CC Docket No. 96-128, FCC 96-388 at ¶ 300 (rel. September 20, 1997) [requiring oppositions to petitions for reconsideration to be filed within seven rather than fifteen days, and eliminating the reply cycle]. See also 47 C.F.R. § 1.3 ("The provisions of this chapter may be suspended, revoked, amended or waived for good cause shown, in whole or in part, at any time by the Commission . . .").

^{8/} Concurrent with this Petition, WCA is submitting to the Commission an Emergency Motion for Stay of the commencement of the WCS auction (the "Stay Motion"). The Stay Motion has been filed in order to ensure that the technical rules affecting WCS operations are established prior to the commencement of the auction, and to ensure that MDS and ITFS licensees not suffer harmful interference should the Commission conduct the WCS auction and permit the commencement of WCS service while this Petition is pending. However, the Commission should note that WCA has no interest in delaying the WCS auction other than in connection with ensuring protection to MDS and ITFS operations. Thus, it is WCA's strong preference that the Commission employ the expedited pleading cycle proposed above and adopt an appropriate limitation on WCS power prior to the scheduled April 15, 1997 commencement of bidding for WCS authorizations.

^{9/} *Statement of Chairman Reed E. Hundt on Spectrum Management Policy Before the Subcommittee on Telecommunications, Trade, and Consumer Protection Committee on Commerce, U. S. House of Representatives*, at 4 (February 12, 1997).

In most instances, service and technical flexibility should be limited only by rules to prevent interference. An authorization to use spectrum is of limited value without an expectation that one's legitimate use of the spectrum will be free from interference by others. Thus, *each user of spectrum, like a user of land or any other resource, must sacrifice some degree of unrestricted use so that every other user can enjoy the benefits of spectrum utilization within that user's own defined bounds.*^{10/}

Last week, Commissioner Ness made a related point, albeit somewhat more colorfully, at CTIA's Wireless '97:

Would you drive your car across a bridge designed by an economist? Seriously, spectrum involves complex technical considerations. Spectrum policy needs to take into account the differing characteristics of radio waves at different frequencies and the many ways in which use of one frequency can impair operation of a different service at another frequency.

Economists have a lot to contribute to the development of spectrum policy. But so do engineers. We neglect them at our peril.^{11/}

WCA strongly agrees with these views -- whatever the benefits of "flexible use," the Commission must impose appropriate technical restrictions on new services to ensure that they do not interfere with their predecessors.^{12/} The Commission, however, inexplicably has failed to follow this

^{10/} Rosston & Steinberg, "Using Market-Based Spectrum Policy to Promote the Public Interest," at 12 (January 1997) (footnotes omitted)(emphasis added).

^{11/} Remarks of Commissioner Susan Ness before CTIA's Wireless '97, "Spectrum Management -- Myths and Realities," at 7 (March 3, 1997).

^{12/} Major equipment manufacturers have similarly highlighted the disadvantages of the Commission's "flexible use" approach to WCS. For example, as noted by ADC Telecommunications, Inc.:

[U]nbridled flexibility will slow the delivery of services to the public. If licensees can provided virtually any services over WCS spectrum, manufacturers will be reluctant to develop products for use on these frequencies until licenses are awarded and a critical mass of licensees announce a common plan for use of the spectrum. Moreover, flexibility does not provide manufacturers with the certainty

approach in the *WCS Order*, despite uncontroverted evidence that a WCS power limitation is necessary to protect MDS and ITFS licensees against blanketing interference.

The Commission's refusal to impose any power limitation on WCS represents a dramatic reversal of course, even in this age of "flexible use." Indeed, the Commission's refusal to impose a power limitation on WCS licensees at this time is flatly inconsistent with how the Commission has applied its "flexible use" policy in prior proceedings. For instance, the Commission recently amended Part 15 of its Rules to make available 300 megahertz of spectrum at 5.15-5.35 GHz and 5.725-5.825 GHz for use by a new category of unlicensed equipment, called Unlicensed National Information Infrastructure ("U-NII") devices.^{13/} In so doing, however, the Commission did *not* allow U-NII devices to operate at unlimited power; rather, to protect licensed operations from harmful interference, the Commission established specific power limits for U-NII devices. Also,

needed to develop technically compatible, economically viable new equipment and applications. At a minimum, the flexible regulatory scheme proposed for WCS will likely increase the cost of equipment, because equipment will have to be designed both not to interfere with the numerous other service offerings that could be provided over the same spectrum, and to reject interference from such other potential services. If, however, the Commission were to assign WCS spectrum for a limited number of flexible uses, compatible equipment could be designed and interference problems minimized. Thus, rules providing limited service flexibility would actually spur the development of new equipment and deployment of new services far better than the current proposal.

Comments of ADC Telecommunications, Inc., GN Docket No. 96-228, at 14 (filed Dec. 4, 1996). *See also* Comments of Motorola, Inc., GN Docket No. 96-288, at 6 (filed Dec. 4, 1996); Comments of Lucent Technologies, Inc., GN Docket No. 96-288, at 3-5 (filed Dec. 4, 1996).

^{13/} *In the Matter of Amendment of the Commission's Rules to Provide for Operation of Unlicensed NII Devices in the 5 GHz Frequency Range*, ET Docket No. 96-102, FCC 97-5 (rel. Jan. 9, 1997).

in the Commission's *Report and Order* authorizing flexible use of CMRS spectrum, the Commission did not authorize providers of co-primary fixed CMRS services to operate at unlimited power; instead, the Commission required such providers to comply with the maximum power limitations imposed on base and mobile CMRS stations operating on the same frequencies.^{14/} And, when the Commission amended its Rules to authorize more flexible use of IVDS spectrum, the Commission adopted a power limit for all mobile IVDS response transmitter units to protect licensees in other services.^{15/}

Each of these examples demonstrates that the Commission has been careful to ensure that its "flexible use" policy does not override its fundamental obligation to protect existing service providers from harmful interference. There is no discernable reason why the Commission should now pursue a different course and refuse to impose power limitations on WCS licensees to protect incumbent MDS and ITFS licensees. Accordingly, for the reasons set forth herein, the public interest demands that the Commission remedy its error by imposing a power limitation on WCS licensees that will allow MDS and ITFS licensees to operate without harmful WCS interference.

^{14/} *In the Matter of the Commission's Rules to Permit Flexible Service Offerings in the Commercial Mobile Radio Services*, 11 FCC Rcd 8965, 8978 (1996).

^{15/} *In the Matter of Amendment of Part 95 of the Commission's Rules to Allow Interactive Video and Data Service Licensees to Provide Mobile Service to Subscribers*, 11 FCC Rcd 6610, 6617 (1996).

A. The Commission's Refusal to Impose a Power Limitation on WCS Licensees is Based on Incorrect Assumptions.

In the proceeding leading up to the *WCS Order*, BellSouth Corporation ("BellSouth") put evidence into the record demonstrating that blanketing interference will result from high power WCS signals in close proximity to MDS/ITFS receivers. Specifically, BellSouth established that the Commission should restrict WCS operations to 20 watts EIRP absent the consent of potentially impacted MDS and ITFS licensees.^{16/} BellSouth's analysis is supported and supplemented by the Hardin Statement attached hereto. Significantly, at no point either before or after the BellSouth submission has any participant suggested that WCS services will require transmissions in excess of 20 watts EIRP.^{17/} Moreover, neither the Commission nor any commenting party has disputed BellSouth's technical showing or otherwise suggested that the industry's concerns were not legitimate. To the contrary, the only responses to BellSouth were supportive filings by WCA, George Mason University Instructional Foundation, and the National ITFS Association.^{18/}

^{16/} See *Ex Parte* Statement of BellSouth Corporation, GN Docket No. 96-228 (filed Jan. 30, 1997) [hereinafter cited as "BellSouth Statement"].

^{17/} While the Commission asserts that "no potential WCS applicants have had an opportunity to respond to [BellSouth's] comments" (*WCS Order* at ¶ 157), BellSouth made its *ex parte* submission on January 30, 1997 — almost three weeks before the *WCS Order* was released. Moreover, the Commission announced BellSouth's *ex parte* filing via *Public Notice* released February 7, 1997. See *Public Notice, "Ex Parte Presentations and Post-Reply Comment Period Filings in Non-Restricted Proceedings,"* (rel. Feb. 7, 1997). Thus, interested parties had a full opportunity to comment on the matters raised in the BellSouth statement.

^{18/} WCA submitted a statement indicating that it could cost the wireless cable industry at least \$125,000,000 to cure WCS interference. Letter to the Federal Communications Commission from Andrew Kreig, Esq., Acting President, The Wireless Cable Association International, Inc., GN Docket No. 96-228 at 1 (filed Jan. 31, 1997) [hereafter cited as "Kreig

Nonetheless, the Commission refused to impose a power limitation on WCS licensees, apparently because it assumed that, in connection with a transition to digital technology, the wireless cable industry “is converting to newer, more robustly designed downconverters that have vastly improved frequency selectivity and would not receive WCS signals.”^{19/} However, the Commission’s analysis of the problem of WCS interference to MDS and ITFS reception equipment is flawed by apparent misunderstandings regarding the nature of the interference and the prospects for remedial action.

At the outset, the *WCS Order* is wrongly premised on an assumption that MDS and ITFS “downconverters receive all signals throughout the entire 2.1-2.7 GHz band”^{20/} Many downconverters are designed solely to receive the MDS and ITFS signals in the 2500-2690 MHz range, while others (which are referred to as “dual band block downconverters”) are designed to receive both the MDS channels at 2150-2162 MHz and the MDS and ITFS channels at 2500-2690 MHz. Nonetheless, as discussed in the Hardin Statement:

In a very broad sense, [the Commission’s] statement is correct, at least with respect to those block downconverters which are designed to operate in both the 2.1 GHz and 2.5 GHz bands. However, it can lead the reader to believe that the block downconverters, and specifically dual band block downconverters, have no filtering in the frequency band 2.162-2.5 GHz to lessen the interference potential

Letter”]. The National ITFS Association filed supporting comments urging the Commission to adopt BellSouth’s proposal in order to preserve ITFS operations from interference. *See* Letter from Theodore Steinke, Chairman of the Board, National ITFS Ass’n, GN Docket No. 96-228 (filed Feb. 6, 1997). Similar comments were filed by the George Mason University Instructional Foundation, Inc.. *See* Letter from Michael R. Kelley, Ph.D, President, GN Docket No. 96-228 (filed Jan. 31, 1997).

^{19/} *WCS Order* at ¶ 157.

^{20/} *Id.*

of signals at these frequencies not employed by MDS/ITFS operators. That is not correct. Filtering does exist and filters the unwanted signals from present operation in that band.^{21/}

Regardless of whether they operate in the 2.1 GHz and 2.5 GHz band or only the 2.5 GHz band, the fact is that the current MDS and ITFS downconverters effectively filter all potential interference from previously authorized users of the 2305-2320 and 2345-2360 MHz bands that are being reallocated to WCS. The problem arises (and it will arise for single band and dual band downconverters alike) not because the installed base of downconverters lack filtering between 2162 MHz and 2500 MHz, but because the Commission is authorizing WCS operations without imposing any limit on power.

More importantly, the Commission's assumption that the potential for blanketing interference from WCS operations will be remedied as the wireless cable industry transitions to digital technology is flawed in several respects. First, many wireless cable systems, particularly those serving more rural communities, are unlikely to convert to digital modulation because the costs associated with digital operations cannot be borne by their limited subscriber base.^{22/} For similar reasons, ITFS licensees that operate independently of wireless cable systems have announced no plans to convert to digital technology and thus should not be expected to replace their installed base of downconverters any time soon.

Second, many of the wireless cable systems that anticipate converting to digital modulation have been installing "digital ready" downconverters for some time now, and will not

^{21/} Hardin Statement, at 3.

^{22/} See, e.g., Barthold, "A Foggy Road Ahead," *Cable World*, at 21 (Jan. 27, 1997).

be replacing those downconverters in connection with a conversion to digital transmission technology. These “digital ready” downconverter are equipped with a local oscillator that has improved phase noise performance, an improvement that has no impact on the downconverter’s sensitivity to frequency overload or blanketing interference from WCS signals.^{23/} Simply put, the use of digital technology has no bearing on the wireless cable industry’s ability to protect against blanketing interference from WCS licensees operating at excessive power.

Third, and most importantly, *it is impossible for equipment manufacturers to design downconverters that will eliminate blanketing interference from WCS where there are no power limitations on WCS licensees.* As noted above, MDS/ITFS downconverters have been designed to avoid interference by filtering out signals from currently authorized users of the 2305-2320 and 2345-2360 MHz bands. As set forth in letters from Pacific Monolithics and California Amplifier accompanying the Hardin Statement, the frequency selectivity for an MDS/ITFS downconverter required to avoid blanketing interference from WCS cannot be defined if WCS power is unlimited, and there is no known technology that will provide infinite frequency selectivity to ensure that downconverters will not receive signals from WCS transmitters operating with unlimited power.^{24/} In other words, equipment manufacturers cannot design downconverters that

^{23/} Hardin Statement at 1-2 and at Attachment 1 (Letter from Pacific Monolithics, or the “Pacific Letter”) at 2. Indeed, California Amplifier is already supplying digital downconverters to the wireless cable industry and has unequivocally concluded that these downconverters will be subject to harmful WCS interference if they are located closer than 300 feet to a WCS transmitter operating with an EIRP of 20 watts. Hardin Statement at Attachment 2 (Letter from California Amplifier or the “CalAmp Letter”) at 1.

^{24/} Pacific Letter at 2; CalAmp Letter at 1. The Commission therefore erroneously suggests that WCS interference to MDS/ITFS licensees arises from use of downconverters that

will avoid WCS interference unless they know what WCS power levels they are supposed to protect against. Hence, the only way equipment manufacturers can design downconverters that will protect against WCS interference is for the Commission to impose a specific power limitation on WCS licensees.^{25/}

In short, the solution envisioned by the Commission — the routine replacement of MDS and ITFS downconverters with equipment capable of rejecting interfering signals from high-power WCS operations — simply does not exist. Thus, the Commission must take action to assure that MDS and ITFS operations not suffer destructive interference at the hands of WCS.

B. The Commission's Statement That It Will Examine WCS Interference on a Post Hoc Basis Does Not Provide Adequate Protection For MDS/ITFS Licensees.

It is beyond dispute that Commission was created to regulate the technical operations of communications service providers so they do not cause harmful electromagnetic interference to each other:

Before 1927, the allocation of frequencies was left entirely to the private sector, and the result was chaos. It quickly became apparent that broadcast frequencies constituted a scarce resource whose use could be regulated and rationalized only by the Government. Without government control, the medium would be of little use because of the cacophony of competing voices, none of which could be clearly

have “employed an inexpensive design that has minimal frequency selectivity.” WCS Order at ¶ 157. Rather, WCS interference will occur because it is impossible to design an MDS/ITFS downconverter with the required frequency selectivity where WCS power is undefined.

^{25/} Finally, the Commission is also mistaken in assuming the potential for interference to MDS/ITFS licensees is somehow dependent on the type and timing of services WCS licensees will provide in the future. It is the absence of any power limitation whatsoever on WCS licensees that raises the specter of blanketing interference to MDS and ITFS licensees, regardless of how and when WCS spectrum is used. *See Hardin Statement at 2-3; Pacific Letter at 1.*

and predictably heard. Consequently, the Federal Radio Commission was established to allocate frequencies among competing applicants in a manner responsive to the public “convenience, interest, or necessity.”^{26/}

Here, in the name of promoting “flexible use,” the Commission risks a return to that cacophony of competing voices by avoiding any meaningful effort to address the WCS interference issue.

It is not enough for the Commission to merely state, as it does in the *WCS Order*, that “we may in the future, based on actual WCS operations, find it necessary to adopt an interference rule for WCS.”^{27/} Simply stated, this approach fails to adequately protect MDS and ITFS licensees from WCS interference that could have a devastating impact upon their operations, and risks a loss of the public benefits that will be realized by having vibrant wireless cable and distance learning operations.

The Commission’s decision to defer consideration of the WCS interference issue until a WCS licensee has commenced operations and actually caused interference provides little comfort to wireless cable operators who cannot effectively compete in the marketplace without interference-free operation of the MDS and ITFS channels they use to deliver programming to subscribers. The Commission must not forget that wireless cable is a *service-oriented* business that competes directly with incumbent cable operators and, more recently, DBS operators. As the Commission has previously recognized, wireless cable’s high signal quality provides it with a strength *vis-a-vis* cable.^{28/} But, as noted above, wireless cable subscribers will not tolerate

^{26/} *Red Lion Broadcasting Co., Inc. v. Federal Communications Commission*, 395 U.S. 367, 375-6 (1969) [footnotes omitted].

^{27/} *WCS Order* at ¶ 157.

^{28/} *Implementation of Section 19 of the Cable Television Consumer Protection and*

interference while the Commission conducts a rulemaking proceeding to consider WCS interference -- consumers instead will switch to alternative sources of multichannel video programming.^{29/}

Such a result not only would be contrary to the Commission's long-standing efforts at promoting competition in the multichannel video marketplace,^{30/} it would be a breach of faith with those who have made significant investments in bringing about competition to the public through wireless cable. The Commission cannot ignore, for example, that winning bids in the Commission's recent auction of MDS Basic Trading Area authorizations totaled over \$200,000,000.^{31/} Wireless cable operators have paid and will continue to pay millions of dollars

Competition Act of 1992: Annual Assessment of the Status of Competition in the Market for the Delivery of Video Programming, 9 FCC Rcd 7442, 7484-85 (1994).

^{29/} The Commission has previously recognized that providing wireless cable operators with an appropriate level of interference protection is essential to making wireless cable service attractive to consumers. See, e.g., *Amendment of Parts 21, 43, 74, 78 and 94 of the Commission's Rules Governing Use of the Frequencies in the 2.1 and 2.5 GHz Bands Affecting: Private Operational-Fixed Microwave Service, Multipoint Distribution Service, Multichannel Multipoint Distribution Service, Instructional Television Fixed Service, & Cable Television Relay Service*, 10 FCC Rcd 7074, 7078 (1995)(hereinafter cited as "*MDS Second Order on Reconsideration*").

^{30/} A discussion of the Commission's efforts to promote wireless cable can be found at *Amendment of Parts 21 and 74 of the Commission's Rules With Regard To Filing Procedures In The Multipoint Distribution Service and In The Instructional Television Fixed Service*, 10 FCC Rcd 9589, 9591 (1995) and *Amendment of Parts 21 and 74 of the Commission's Rules With Regard to Filing Procedures in the Multipoint Distribution Service and in the Instructional Television Fixed Service*, 9 FCC Rcd 7665, 7666 (1994). See also, e.g. *Request for Declaratory Ruling on the Use of Digital Modulation by Multipoint Distribution Service and Instructional Television Fixed Service Stations*, FCC 96-304, DA 95-1854 (rel. July 10, 1996).

^{31/} See Public Notice, "Winning Bidders in the Auction of Authorizations to Provide Multipoint Distribution Service in 493 Basic Trading Areas," at 1 (rel. March 29, 1996).

to ITFS licensees in exchange for the right to lease excess capacity on ITFS channels. And, hundreds of millions of dollars have been spend on the transmission and reception equipment necessary to develop wireless cable and distance learning infrastructures. These investments will be at risk if the Commission fails to take the action requested in this Petition. WCA submits that there is no policy justification for such a result.^{32/}

The Commission must be particularly attuned to the potential adverse effects of its decision on ITFS educational services. The Commission has already acknowledged the critical role that wireless cable operators play in supporting the ITFS service through lease payments to ITFS licensees.^{33/} Thus, any WCS interference to a wireless cable operator's service will

^{32/} In considering the policy concerns raised by WCA, the Commission should not ignore the serious Fifth Amendment legal issues, particularly those associated with the Commission's having auctioned MDS BTA authorizations and now adopting WCS rules that could significantly diminish the value of those authorizations. WCA submits that if the Commission does not grant the relief requested by this Petition, the Commission will have engaged in a regulatory taking without just compensation in violation of the Fifth Amendment of the United States Constitution. For example, just as a regulatory taking of land occurs when a governmental regulation "denies an owner economically viable use of his land," the new WCS rules constitute a regulatory taking by depriving BTA authorization holders of the ability to make economically viable use of the rights they acquired from the Commission. *See, e.g., Agins v. Tiburon*, 447 U.S. 255, 260 (1979); *Corn v. City of Lauderdale Lakes*, 95 F.3d 1066, 1072 (11th Cir. 1996). *See also* Tara Susan Becht, "The General Wireless Communications Service: FCC Spectrum Traffic Cop or Broker?" 4 ComLaw Conspectus 95, 102-03 (1996). Similarly, given the financial commitments that MDS and ITFS licensees and wireless cable operators have made over the years in developing their services, all based on regulatory policies that protect incumbents from interference caused by newcomers, any change in those policies that results in substantial economic loss is subject to constitutional challenge.

^{33/} *See, e.g., MDS Second Order on Reconsideration*, 10 FCC Rcd at 7078 ("We believe strengthening MDS operators will have important secondary benefits for ITFS licensees, and better enable them to meet their educational service objectives."); *Amendment of Part 74 of the Commission's Rules Governing Use of the Frequencies in the Instructional Television Fixed Service*, 9 FCC Rcd 3360, 3364 (1994) ("We believe that our endorsement of [ITFS] channel

necessarily affect the operator's ability to help sustain local ITFS operations. Moreover, the Commission has recognized that ITFS licensees, whether or not they are affiliated with a wireless cable system, are a unique and valuable source of educational programming that is unavailable through other multichannel technologies.^{34/} Much of this programming consists of lectures and other formal classroom material offered by local schools to students for credit towards an academic degree or diploma.^{35/} Any material WCS interference will undercut the ability of local educators (whether or not they are affiliated with a wireless cable operator) to deliver course material to their students as scheduled, thereby defeating the primary purpose of the ITFS service.^{36/} Historically, the Commission has been extremely careful to provide specific interference protection for ITFS licensees in prior proceedings.^{37/} Consistent with this policy,

loading will . . . [allow ITFS licensees] flexibility to cultivate their partnerships with wireless cable operators, an arrangement we have sought to nurture over the last decade, to the welfare of the ITFS service and the public In today's market environment, MMDS channels and ITFS channels are interrelated components of an integrated set of channels used to provide non-broadcast instructional and entertainment programming in a given market.").

^{34/} See, e.g., *Amendment of Part 74 of the Commission's Rules*, 101 F.C.C.2d 50, 80 (1985) ["The argument that a unique and significant value of ITFS lies in its ability to reach beyond school walls is persuasive. In this respect, it is imperative to focus on the purpose of ITFS, which is not so much to serve school buildings as to serve students and schools, satisfying the demand for televised formal education."] [hereafter cited as "*1985 ITFS Order*"].

^{35/} The health care community has also become increasingly active in ITFS. For example, ITFS licensees now include teaching hospitals that offer formal programming to medical students. *1985 ITFS Order* at 81. The Commission has observed that teaching hospitals are "unique institutions in providing this specialized ITFS service." *Id.*

^{36/} *Id.* at 80 ("The clear and guiding principle . . . is that the primary purpose of ITFS was at its founding and remains to serve formal academic needs.").

^{37/} See, e.g., *Amendment of Parts 21 and 74 of the Commission's Rules with Regard to Filing Procedures in the Multipoint Distribution Service and in the Instructional Television Fixed*

the Commission should take a similarly definitive position in this proceeding and impose a power limitation on WCS licensees that will preserve the integrity of the ITFS service.^{38/}

C. The Commission Should Impose a 20 Watt Power Limitation on WCS Licensees as Initially Proposed.

For the reasons set forth in the wireless cable industry's previous submissions and in the Hardin Statement, WCA submits that the Commission can sufficiently protect MDS and ITFS licensees against harmful WCS interference by limiting the authorized power of WCS licensees to 20 watts EIRP. There is no evidence before the Commission in this proceeding that suggests that such a power limitation would decrease the value of WCS spectrum or preclude WCS licensees from deploying their facilities in the most optimal manner. Furthermore, by imposing a power limitation on WCS licensees that sufficiently protects MDS and ITFS licensees without devaluing the WCS service, the Commission will advance the broader Congressional objectives

Service, 10 FCC Rcd 13821, 13826 (1995) [amending Section 21.938(c) of the Commission's Rules to require MDS auction winners to correct at their own expense any harmful interference caused to ITFS licensees].

^{38/} The Commission has indicated that if it eventually adopts rules protecting MDS/ITFS licensees against WCS interference, it will protect only those MDS/ITFS downconverters installed within a year from the adoption date of the *WCS Order*, i.e., by February 19, 1998. *WCS Order* at ¶ 157. After that date, the Commission expects that "more spectrally efficient downconverters would be installed by MDS/ITFS licensees." *Id.* As discussed above, however, equipment manufacturers cannot even begin to *design* the necessary downconverters *unless they know what WCS power levels they are supposed to protect against*. Thus, if it does nothing else, the Commission should assure protection of existing MDS or ITFS downconverters until the Commission imposes a specific power limitation on WCS licensees to allow equipment manufacturers to design, manufacture and market newer downconverters that will protect against WCS interference at the WCS power limit specified by the Commission.

of promoting regulatory parity between wireless services, and thereby ensuring that no service providers are granted an unfair advantage in the marketplace.^{39/}


III. CONCLUSION.

The choice before the Commission in this matter is very straightforward: it can take the necessary steps to provide MDS and ITFS licensees with sufficient interference protection against WCS licensees, or it can give WCS licensees unbounded authority to operate at excessive power and thereby cause interference that will injure the wireless cable industry and ITFS service providers as well as members of the public who use, or may in the future use, wireless cable and/or ITFS service. For the reasons set forth above, every relevant technical, legal and public interest consideration dictates that the Commission do the former. Accordingly, WCA requests

^{39/} It must be remembered that under the Commission's "flexible use" policy, WCS licensees may use WCS spectrum to provide MDS service. See WCS Order at ¶ 25 ("We conclude that under the totality of the circumstances presented, the 2305-2320 and 2345-2360 MHz bands will be allocated on a primary basis for fixed, mobile, radiotelephone, and broadcasting-satellite (sound) services without further designations WCS licensees themselves will determine the specific services they will provide within their assigned spectrum and geographic areas."). Thus, it is absolutely critical that the Commission impose a power limitation on WCS licensees so that they do not have an unfair advantage over MDS licensees providing similar services. See, e.g., Joint Comments of Sprint Spectrum L.P. d/b/a Sprint PCS and Sprint Corporation, GN Docket No. 96-228, at 9 (filed Dec. 4, 1996) ["Congress has required that any regulatory scheme for wireless services established by the Commission must address regulatory parity and the competitive relationship between wireless services. To ensure a robust wireless marketplace, similar services must be subject to similar regulatory constraints so that no service providers are granted an unfair advantage."] [footnotes omitted]. Comments of Primeco Personal Communications, L.P., GN Docket No. 96-228, at 3 (filed December 4, 1996) ["The public interest requires that implementation of the new WCS be undertaken in a manner that ensures regulatory parity and avoids prejudice to existing licensees and allocation schemes."]

that the Commission modify its Rules adopted in the *WCS Order* to impose a 20 watt EIRP power limitation on WCS licensees.

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**ENGINEERING STATEMENT OF T. LAURISTON HARDIN, P.E.
CHAIRMAN OF THE ENGINEERING COMMITTEE OF THE
WIRELESS CABLE ASSOCIATION INTERNATIONAL
IN SUPPORT OF A MOTION FOR RECONSIDERATION**

INTRODUCTION

By its recent action is the *Report and Order*, GN Docket No. 96-228, (the "Order") the Commission has amended its Rules to establish Part 27, the Wireless Communications Service ("WCS"). Unfortunately, under the Rules adopted via the Order, the WCS can cause significant interference to the operations of MDS and ITFS systems throughout the country.

A subcommittee of the Engineering Committee of the Wireless Cable Association International ("WCAI") was formed to review the interference potential posed by WCS and this document is the result of that subcommittee's work. Included in the subcommittee were representatives of WCAI member companies including system operators and equipment manufacturers.

It is the finding of the subcommittee, as will be discussed hereinafter, that WCS operations as proposed in the Order will cause significant interference to the operations of MDS and ITFS systems. It is the further finding that it is impossible for the manufacturers of MDS and ITFS equipment to develop equipment which can mitigate this WCS interference due to the lack of power limitations on the WCS.

NEW MDS/ITFS BLOCK DOWNCONVERTERS

In the Order, paragraph 157, the Commission states

"... We are aware that the MDS/ITFS industry is converting to newer, more robustly designed downconverters that have vastly improved frequency selectivity and would not receive WCS signals. Also, the digital downconverters to which the MDS/ITFS industry is expected to convert over the next several years are expected to be better designed and not subject to overloading from WCS signals...."

This statement, as pertains to WCS interference, is patently incorrect. As supported in the attached letters from block downconverter manufacturers Pacific Monolithics, California Amplifier, and Conifer Corporation, **given no power limits on WCS, it is impossible to even design a block downconverter to eliminate WCS interference, much less produce one.** The situation is analogous to being instructed to build a levy to hold back flood waters but not being told how high the flood level might be. As the Commission has left the use of the WCS spectrum to the market to decide, including the operating power, the MDS/ITFS operators will always be at the mercy of the newest and possibly higher power use of the WCS. Further, the so-called digital downconverters have been designed to new phase noise standards for digital operation, not